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EXAMINER

ZHANG, SHIRLEY X

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2444

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/767,593	Applicant(s) CHRON ET AL.	
	Examiner SHIRLEY X. ZHANG	Art Unit 2444	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,5-7,10,11,20,22 and 29-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2, 5-7, 10-11, 20, 22, 29-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This final office action is prepared in response to the applicant's amendments and arguments filed on August 31, 2009 as a reply to the non-final office action mailed on June 2, 2009.

Claims 2, 5-7, 10-11, 18-20, 22, 29-30 were previously pending;

Claims 18, 19 have been cancelled;

Claims 2, 6, 11, 20, 22, 29-30 are currently amended;

Claims 31-32 are added;

Claims 2, 5-7, 10-11, 20, 22, 29-32 are now pending;

Response to Arguments

Applicant's arguments and amendments filed on August 31, 2009 have been carefully considered but deemed unpersuasive in view of the following new grounds of rejection as explained herein below, necessitated by Applicant's substantial amendments to the claims which significantly affected the scope thereof, and will require further search and consideration.

Accordingly, THIS ACTION IS MADE FINAL. See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

1. The rejection of claim 22 under 35 U.S.C. 112, second paragraph has been withdrawn in view of the new claim amendments.
2. As applicant's arguments are directed towards limitations newly added to the claims, the examiner's response can be found below in the "Claim Rejections" section.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 29 and 30** are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention.

The application specification indicates that a client computer uses NFS or CIFS as a storage access protocol to communicate with a virtualizer (Specification, paragraphs [0005] and [0014]).

However, claims 29 and 30 recite "Transmission Control Protocol/Internet Protocol (TCP/IP) protocols" that are broad and not specific about what protocol the invention actually uses.

Furthermore, claims 29 and 30 recites "said client computer combines said multiple Ethernet packets of said request for storage into one jumbo packet."

However, according to the application disclosure, it is the virtualizer that combines said multiple Ethernet packets of said request for storage into one jumbo packet (Specification, paragraph [0011]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2444

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 2, 5-7, 10-11, 20, 22 and 29-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Miloushev et al. (U.S. 2002/0120763, hereinafter “**Miloushev**”), in view of Miloushev et al. (U.S. 7,512,673, hereinafter “**Miloushev-673**”) and Kajizaki et al. (U.S. 7,274,711, hereinafter “**Kajizaki**”).

Regarding claim 29, Miloushev disclosed a system for virtualizing multiple network attached stores, said system comprising:

a plurality of network attached stores connected to an internal communications network (Miloushev, Fig. 1, “file server 1” to “file server 7”),

wherein each of said plurality of network attached stores corresponds to a plurality of network attached store computers (Miloushev, Fig. 1, “file server 1” to “file server 7”);

a client computer, running a client application, connected to an external communications network (Miloushev, Fig. 1, any one of “CLT 1” to “CLT 4”), wherein:

a virtualizer connected to said internal communications network and said external communications network (Miloushev, Fig. 1, “file switch 100”),

wherein said virtualizer:

receives a request for storage from said client computer (Miloushev, Figs. 2-4, and [0132], “write request”);

determines which single network attached store of said plurality of network attached stores will process said request for storage (Miloushev, [0137] disclosed that the

Art Unit: 2444

switch 100 examines the write request and decides which of the file servers, i.e., network attached stores, to forward the request); and

routes said request for storage to said single network attached store, corresponding to a single network attached store computer (Miloushev, [0137] disclosed that the switch 100 forwards the write request to the chosen file server);

wherein said single network attached store computer:

processes, at one time, said request for storage according to said network attached store protocol (Miloushev, [0143]);

constructs a response, a single response, addressed to said client computer, by re-assembling all multiple response packets into said single response (Miloushev, Fig. 4 and [0143] disclosed that the file server forms a transaction/write response 206);

packetizes said single response and sends said single response to said virtualizer (Miloush, Fig. 4 and [0143] disclosed that the file server sends the response back to the file switch 100; as NFS or CIFS is used as the file system protocol, it is inherent that the file server must packetize the response before sending it the the file switch);

wherein said virtualizer:

determines that said single response is addressed to said client computer (Miloushev, Fig. 4 and [0144]); and

forwards said single response to said client computer (Miloushev, Fig. 4 and [0144]); and

Art Unit: 2444

wherein said client computer:

receives said single response and de-packetizes said single response; and passes said response to said client application (Miloushev, [0145]).

Miloushev did not explicitly disclose

Translates said TCP/IP protocols of said request for storage received from said client computer into a network attached store protocol for communication with a plurality of network attached stores;

However, in a separate patent application (U.S. 7,512,673), Miloushev disclosed translating the client request in a first file system protocol into a second file system protocol (Miloushev-673, col. 14, lines 19-24).

One of ordinary skill in the art would have been motivated to combine Miloushev and Miloushev-673 because they disclosed two aspects of the same system by the same inventor.

Miloushev did not explicitly disclose

said client computer packetizes a request for storage from said client application as multiple standard Ethernets, each of said multiple Ethernet packets including a unique request identifier corresponding to said request for storage;

said client computer sends said request for storage to a network address of a virtualizer, which is stored by said client computer, using Transmissin Control Protocol/Internet Protocol (TCP/IP) protocols; and

Art Unit: 2444

said virtualizer (*was “said client computer” in the claim*) combines said multiple Ethernet packets of said request for storage into one jumbo packet.

However, it is the Examiner’s understanding that the claim elements cited above which were not explicitly disclosed by Miloushev are about reassembling/combining Ethernet packets by considering the change in the Maximum Transmission Unit (MTU) of a transmission path.

Regarding “reassembling/combining Ethernet packets by considering the change in the Maximum Transmission Unit (MTU) of a transmission path”, Kajizaki has detailed disclosure on why and how it is done (Kajizaki, “Abstract” and “Summary of Invention”).

One of ordinary skill in the art would have been motivated to combine Miloushev and Kajizaki because both disclosed transmitting Ethernet packets from one network host to another through routers/switch. In particular, Kajizaki disclosed that the combination of packets reduce the load of the network relay apparatus (i.e. routers) (Kajizaki, col. 1, lines 24-34).

Therefore, it would have been obvious for one skilled in the art to incorporate Kajizaki’s teaching into Miloushev such that Miloushev’s file switch (i.e. network relay apparatus) would combine multiple small Ethernet packets into a jumbo packet to not only fully utilize the available bandwidth, but also reduce the load of the file switch caused by routing.

Claim 30 recites substantially the same elements as claim 29 in method form rather than system form; therefore the rationale for the rejection of claim 29 applies equally as well to claim 30.

Regarding claim 2, Miloushev disclosed the communications network of claim 29.

Miloushev further disclosed

an internal network of connection nodes connecting said virtualizer with said plurality of network-attached store computers (Miloushev, Fig. 1);

a plurality of communications network adapters by which said computer system connects to said internal communications network, and a plurality of storage network adapters by which said computer system connects to said internal storage network (Figs. 1, 14 and [0124]).

As to claim 5, Miloushev disclosed the communications network of claim 29.

Milousheve further disclosed that the system comprises an Ethernet networking hardware and medium access protocols for facilitating communication within said internal communication network (Miloushev, [0122] disclosed that the file switch is preferably equipped with multiple high-speed network interfaces, such as gigabit or higher Ethernet interfaces).

As to claim 6, Miloushev disclosed the communications network of claim 29.

Milousheve further disclosed that the system comprises a Transmission Control Protocol / Internet Protocol facilitates communication between said plurality of network-attached store computers and said client computer (Miloushev, [0133] discloses that the file switch contains a TCP protocol stack).

As to claim 7, Miloushev disclosed the communications network of claim 29.

Art Unit: 2444

Milousheve further disclosed that the system comprises a storage access protocol for facilitating communication between a storage component within said communications network and remaining components within said communications network (Miloushev, [0123] discloses that the file switch preferably supports multiple industry standard network file protocols, such as NFS and CIFS).

As to claim 10, Miloushev disclosed the communications network of claim 29.

Milousheve further disclosed wherein said virtualizer comprises a network router (Miloushev, [0133] discloses that the typical operation of the file switch involves receiving file protocol requests, such as login, tree connect/mount, file open, file read/write, etc., from clients 112 and 113 and forwarding, or switching these requests to one or more of the file servers 101 through 107, therefore the file switch has the function of a network router).

As to claim 11, Miloushev disclosed the communications network of claim 29.

Milousheve further disclosed that the system comprises a communication virtualizer file switch connected to said client computer and a server computer for sending requests for storage from one of a plurality of client computers to a network-attached store and from said network-attached store computer back to said client computer of said plurality of client computers (Miloushev, Fig. 5 and [0133] disclosed that the file switch forwards client requests to the file servers; [0134] disclosed that the file switch sends responses from the server back to the client).

As to claim 20, disclosed the communications network of claim 19.

Art Unit: 2444

Miloushev further disclosed wherein said virtualizer determines which of said plurality of network-attached store computers to transmit said request for storage to by examining said zeroth packet in said request (Miloushev, [0137] discloses that upon receipt of the first frame 201, which contains the request header 200, the switch 100 recognizes that this frame signifies the beginning of a new message, examines the header 200 and decides to which of the file servers to forward the whole message).

Regarding claims 31 and 32, Miloushev disclosed the subject matter of claims 29 and 30 respectively.

Miloushev further disclosed wherein said network attached store protocol comprises one of a Network File system protocol and a Common Internet File System protocol (Miloushev, [0012], “NFS and CIFS”).

5. **Claim 22** are rejected under 35 U.S.C. 103(a) as being obvious Miloushev and RFC 1094, further in view of IETF RFC 791, hereinafter “**RFC 791**’.

As to claim 22, Miloushev disclosed the communications network of claim 21.

Miloushev did not explicitly disclose but it is inherent in RFC 791 that said communication virtualizer dividing said single response into a plurality of standard Ethernet packets to send to said client computer as multiple standard Ethernet packets (RFC 791, Section 2.3 “Function Description” discloses that IP employs the fragmentation technique that segments

Art Unit: 2444

large packets into a series of smaller packets of a size that the underlying physical medium supports, as each type of physical media has its own Maximum Transmission Unit (MTU) requirement; In other words, if the communication virtualizer receives from the network attached store computer as a response a single packet of large size, e.g., a jumbo Gigabit Ethernet packet of 9000 bytes, the IP protocol built into the communication virtualizer will divide said large packet into a plurality of standard 1500-byte Ethernet packets that is acceptable to the regular 100Mbps Ethernet connecting the said virtualizer to client computers).

Conclusion

THIS ACTION IS FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Art Unit: 2444

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHIRLEY X. ZHANG whose telephone number is (571)270-5012. The examiner can normally be reached on Monday through Friday 8:00am - 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Vaughn can be reached on (571) 272-3922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S.X.Z./ Art Unit 2444
10/28/2009

/William C. Vaughn, Jr./

Supervisory Patent Examiner, Art Unit 2444